

who have acquired this power of self-control, and who impress their own inherited ideas of duty and of order on their little ones from their earliest childhood.

Great Britain has her own traditions and her own institutions, and can get along remarkably well without either Military Service or Compulsory Education.

But many English homes have yet to learn the value of time—not the “time” which “is money,” but the days’, months’, and years’ time of their children’s youth, upon the use of which the virtue, happiness, and success of the future men and women so entirely depend.

If we have first-rate schools throughout our land, let us support them as the Germans do, with the full *prestige* of home influence! The parent who underrates his child’s teacher, underrates his child; and the mother who banishes her boy to a public school, merely to get rid of him, by and by—when the young man returns home—becomes *herself* the victim to compulsory education of a very different kind from that which we have been describing in this little paper!

We have seen how much importance they attach beyond the Rhine to the fundamentals of learning, to the minutest details in a little child’s half-hour’s task. Let us “take a wrinkle” from them there, if in nothing else!

How particular the young English mother, or good elder sister, can be about her little ones’ *outward* appearance! She picks up new patterns; she studies the latest designs in bewitching little coats, and jaunty little jackets and tunics. She spares no pains to have her darling little man and woman the bonniest of the bonnie. She will plan and contrive, and sit up late with her needle; she will even flatter the tailor, wheedle the haircutter, and bribe the photographer’s apprentice to accomplish her laudable ends. But when the more important part arrives, namely, the cultivation of the little folks’ hearts and minds, does she always display the same amount of maternal solicitude?

Our English schools are good, and work well. Perhaps they might work even better, were the home authorities and the school authorities always to act hand in hand—consistently supporting one another, and helping each other in their common task of educating the young.

A Sprig of Groundsel.

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It is a little humble weed, common in badly-kept gardens and by roadsides. Its flowers have no beauty that we should desire them. They bid not for entomological notice by large gay blossoms or sweet perfumes. The groundsel is a Lazarus among flowering plants, growing where they cannot grow, and often on the crumbs which fall from the tables of its richer brethren. Everybody knows it, but nobody notices it, except the canary-fancier, who will gather handfuls of it for his bird-pets to make their dessert off.

The groundsel (*senecio vulgaris*) has not even any far-reaching traditions of medical virtues to commend it to human notice. To all intents and purposes it is a Pariah among plants, living on suffrage, living where it can, not where it would like to. It is a floral bankrupt, notwithstanding its high-ranked ancestry and existing blood relations.

I confess to a liking for these vegetable ne’er-do-weels! They are confined to no particular order of plants. You find them among the most lowly as well as among the most florally exalted groups. They represent the keenness and bitterness of the Battle of Life, even in the vegetable kingdom. No quarter is given, the weakest go to the wall! The rocks of the earth’s crust are literally crammed with *extinct* species of animals and plants. These represent the kinds which could not compete with new comers, or the new physical and biological changes in their surroundings. First they became scarce, then rare, perhaps they grew dwarfed and in other ways impoverished, so that one would hardly have recognised them among their more flourishing and robust ancestors.

The same thing is going on now; our little groundsel is an illustration of the fact. It is a member of the largest and most important order of plants in the world—the *Compositæ*—the most numerous, the most diversified, and perhaps the most florally adaptative of all the plants in the vegetable kingdom. They range, in the grandeur of their flower-heads, from the gorgeous sunflowers which æsthetes worship, to the humble down-trodden groundsel they either despise or ignore. Composite plants, like John Wesley, claim “the world as their parish.” They are at home equally well on equatorial plains and equatorial mountains. They crowd the tropics with their arborescent growths and wealths of flowers. They spangle our June meadows with daisies and dandelions, until there is not a floral sight in the world to equal it. They love the bleak hill-sides, and, like the *Edelweiss*, flourish amongst eternal snows.

Nevertheless, the southern parts of Africa appear to be the æsthetic head-quarters of this remarkable floral alliance. In the neighbourhood of the Cape and the bush beyond, we get them clothed in their brightest and best, for this is the land where the lovely “everlastings” mask the ground, chiefly represented by the genus *Helichrysum*, in whose flower heads the scales are as brilliantly-coloured and even more enduring than the ray-florets, insomuch that this group of composites on that account go by the popular name of “everlasting flowers.”

There are two well-marked types of composite flowers—one like the daisy or cineraria or sunflower, in which there is a disk of yellow florets, surrounded by fringes of white or purple or yellow flat or strap-shaped florets. In the second type the entire flower-head is composed of strap-shaped florets, as in the dandelion, the chicory, and the hawkweeds. Now, if we examine one of the larger flower-heads of a composite plant such as the sunflower, we find that the latter is not a flower at all, but a colony of flowers. It would be as correct to call a bee-hive a bee, as to term a daisy or dandelion a flower. Examine a sunflower on account of its larger size. The large disk is merely a *parterre*, a gathering-ground for about 200 closely-packed little yellow flowers. You can dig out one of the latter and examine it. It resembles an upright *campanula* with a short stalk. Each little flower, you will perceive by the lobed outline of the upper part, is really com-

posed of five petals united together as in the case of the *campanula*. Each sunflower floret has its own set of stamens and pistils. It is therefore a perfect flower, and the florets are only massed together on the flower-head for purposes of mutual benefit. The flat yellow ray-florets forming the solar fringe are only so many altered florets, like those forming the disk. You can prove this for yourself in any garden where sunflowers grow, for here and there you will find one of the tubular little disk flowers breaking out into a flat ray-like floret, similar to those on the outside, as if it were tired of living in that humdrum state.

In the daisy this conversion of the minute but perfectly-shaped tubed flowers gathered together in the disk, each one perfect with its stamens and pistil (the latter having an elaborate machinery for preventing self-fertilisation, which I cannot pause to consider here), into strap-shaped florets, takes place even more rapidly than in the sunflower. Everybody is acquainted with the rows of so-called double red and white daisies which fringe the garden paths. Every one of these is merely a field-daisy transferred to a richer soil, which has had its disk or tube-shaped florets converted into strap-shaped ones, like those commonly found “vermeil-tipped and white,” composing the fringe of an open-eyed daisy. That is the reason our garden double daisies never bear seeds.

Now, every yellow floret composing the disk of a field daisy, into which about a hundred and fifty enter, bears a distinct seed, and you would be amused if you noticed the way in which the receptacle, or part of the flower-head on which the colony of florets is inserted, gradually changes from a flat shape to one resembling a thimble, in order to expose these seeds for distribution. If you examine a daisy by plucking off the pink-tipped outside florets one by one, you will find that each is tubular at the base, and that it contains a pistil, but no stamens. The pistils have lost all power of fertility, and therefore cannot produce seeds. They resemble the sexless workers in a bee-hive or an ants' nest. Like them, too, they work for the benefit of the community, and not for themselves. For do they not, when the sun is shining, throw out their masses of whiteness, insomuch that daisies have always been poets' flowers; and the gorgeous colouring of the sunflower, the noble appearance of the ox-

eye daisies, and the rich masses of colour exhibited by the cinerarias, must be the means of advertising the presence of the microscopic colonies of disk-florets to insects in such a way as to insure their visitations, and the consequent cross-fertilisations of the flower-heads. Moreover, as the children say, the daisies "go to sleep." It is a touching expression, if not an accurate one. It means that when night draws nigh, the sensitive sexless ray-florets, which have been expanding all day beneath the brilliant effects of sunshine, close up and roof over like a tent the fertile colony of disk-florets, thus preventing the night dews or rains from washing away their little stores of honey, or damping their hardly-garnered collection of pollen grains.

Some of my readers may imagine I have wandered from the groundsel which formed the text of my floral sermon. I have not had time, nor shall I have space, to point out, that all flowers whose petals grow together into one piece are regarded by botanists, and rightly so, as being of higher floral rank than those flowers whose petals grow separately. They are also a later result of floral evolution, so that every floret in a daisy-head or sunflower-head must really have undergone a series of remarkable petal changes, something like those which not unfrequently occur as "monstrosities" in polypetalous flowers, and which eventually assumed a fixed and marked type. Nor have I the opportunity I should like now of showing how the inflorescence of a composite flower-head became modified in some recent period of the world's geological history from a spike or corymb or umbel into a capitulum, as it is now called; but I feel perfectly sure that all of these floral changes have taken place gradually, and if you go through the floral structures of the leading groups of compositæ, you may still find them in every stage of composition.

Now, my little groundsel has lost all its ray-florets. I cannot tell when or how in the course of its family history they were lost. It has a few near relatives which have not yet quite lost them, and yet one can see they are mortgaged or in pawn. They are of practically no value for insect-attraction purposes. The groundsel is completely without. It is in the same condition that a daisy would be, or a marguerite, had you plucked the outside petals off one by one, saying, "He loves me, he loves me not." What a poor thing the yellow disc of a daisy, or that

of the more gorgeous cineraria or sunflower, looks without these external appendages. If you take a needle and stir up the head of a groundsel, you will find about 120 tube-shaped florets, each a perfect, an exalted flower, although of diminished size. The groundsel flower-head is a floral workhouse, crowded with floral paupers. A few small two-winged insects visit it, for the sake of the few grains of pollen it yields, and which they devour, for it has no honey. The groundsel therefore flowers as a weed all the year round, for it is no longer dependent on summer-loving insects.

